



THE COMPLETE WORKS  
OF  
RUDOLPH  
GLAUER  
trans: Chris. Packe



EXPLICATION OF  
MIRACULUM MUNDI



THE  
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OF  
MIRACULUM      MUNDI

Set forth

In Testimony of the truth of that Matter, and for the Advantage of the Lovers and Followers of ARTS.

Reader,

In the first place, before I prove and verifie the powers and virtues of the aforesaid Universal Subject, which I have attributed to it, in every point, it will be necessary to make known after what manner the mentioned Salt of the Earth performeth its Operations, that the benevolent Reader may not be confounded, nor imagine that it exerciseth all its Operations in one only manner and way, to wit, crude, as it is of it self; for it doth not so, but it exerciseth its power in three manners, forms, or figures. For Example sake; Its first Use is in many Businesses and Arts, as it is simply drawn from the Earth, being purified, and is known to all men. It is applied to another use, being first calcined by fire, and changed and exalted into a more fixed substance. Again, for another use, it is first distilled into a volatile Spirit, and AQUAFORTIS. And so that subject performeth its Operations in Figures, simple, as it is in it self, in form of a Sun; secondly, as a fixed fiery Liquor; thirdly, in the figure of a volatile Spirit, or corrosive AQUAFORTIS; as shall be demonstrated below, from point to point, in order.

Point I.

In the first place all Fossiles, by the mediation of this Subject, may be perfectly examined, what Metals they properly contain, how many, and how much of each.

For the verifying and demonstration of this first point, I will begin to shew, that Minerals may be most commodiously proved by the Mediation of the Salt of the Earth, and in what manner this is to be done. First, The Mineral is to be finely powdered, whether it be GOLD, SILVER, COPPER or LEAD. To a hundred weight of this, add three or four hundred weight of Caicined or fixed Nitre, (Note, That the small Say weight is here meant) mix all very well together, put the mixture into a very strong Pot, which is to be shut with its Cover, set It upon a email foot in such a melting Furnace, as is described in the fourth part of my Furnaces, kindle the fire by degrees, and let the minera, or Ore flow well with its liquor in the Pot, like water, then pour it Into a Vessel fit for this purpose, suffer it to cool, then take out the Regulus; if it be GOLD, SILVER, COPPER, or LEAD, weigh it in a Probatory Balance, and you shall find how much GOLD, SILVER, COPPER, or LEAD, there is in the Ore. N.B. That Iron and Tin cannot be proved in this manner, for Iron is not fusible in such a fire, and Tin is reduced into SCORIL by Combustion, by reason of the Salt. N.B. That if the Regulus of GOLD OR SILVER come not pure, or contain any COPPER or LEAD, suffer it to run upon a Test or Cupel, with a little LEAD, till it sparkle and shine, and you shall have the Metal fine, which is a proof that may be

securely trusted, and according to that a Computation may be made, without any fear of fraud or Sophistication; the Regule of Copper or Lead, need no other trial, but are judged good. N.B. That if the Ore be stubborn, and yields no Regulus in the first melting, let the Pot be again set into the Furnace, (if it be yet whole, putting to the Ore, giving no Regulus, a piece or two of Iron) being covered, least the Coals fall into it, suffer it to flow, then the iron entereth into that untameable Sulphur, existing in the Ore, and hindering it from passing into Regulus, and suffereth the Gold, Silver, Copper, or Lead, contained in that Mineral, to fall down, which is to be poured out into a fit vessel, and the Regulus will settle to the bottom, which being cold is to be separated from the Scoria, but if you will prove whether or no the Gold containeth any Silver, or the Silver any Gold or Copper, or the Lead any Silver or Gold, then suffer the Regulus to flow upon a Cupel, till it sparkle with a Splendour, and afterwards make separation by AQUA FORTIS, and you shall find how much of every Metal is permixed with the other. There is no need to describe this separation at large, because it is every where known, and now very perspicuously taught by LAZARUS ERKER, so that it needs no repetition: I have here shewed, and proved, that by the Mediation of Nitre, Minerals may easily and speedily be examined. Therefore, this first Point being now proved and verified, I give thanks to God, who I trust, will further assist me.

Point II.

The Marcasites of Gold and Silver, being melted by the Mediation of this, by a singular Compedium, hitherto unknown, do afford more Metal than by the common way.

That which is contained in this second point is not the least amongst my Lucriferosus Secrets, but one of the best, which I have always reserved most secret within my own breast. Many Men have often allured me with fair Speeches, to demonstrate it, but hitherto have I not been prevailed with to do it, not out of envy, or that my self alone should have that art at command, but because Faith is hardly any where to be found, it is now reputed an honour to promise many things, and perform few, but a disparagement to keep Promises; for I have often learned to my loss, that when through fair Words, and Promises oftentimes more than I required, I have been perswaded to Communicate this, or that Secret; as soon as it hath been out of my hands, I have found the quite contrary, for instead of a Reward, they have either derided me, or began to quarrel and contend, and in this manner, the Benefits which I have conferred upon them, have been recompensed with great Impiety.

The Process followeth.

Let there be a Furnace built of good Stone, which is able to endure the Fire, small or great, as you please, or according to the necessity and commodity of your Labour, in the following manner. First build



an Arch about a Cubit high from the ground, the which cover and make level above with Iron Plates, or Stone that will hold the Fire, which shall be the foot of the Furnace, the length of which ought to exceed the breadth four times, that is, it ought to be four times as long as broad, by this Arch or foot of the Furnace there is yet another Furnace to be erected, whose bigness within must be half the breadth of the long Furnace, and about two Cubits high from the wind holes, into which the Wood is to be put, and in that Furnace, on that side which adjoineth to the melting Furnace, is to be a hole, through which the flame of the lighted Wood may strike upon the Hearthe of the Furnace, and heat them; above, let there be an Iron Cover, to that end that when the wood is put in, the Furnace say be covered with it, and the flame may be forced to enter by the side into the Melting Furnace, and let the Melting Furnace, the Hearth being now perfect, be divided according to its length, into three Chambers or parts, so that every Chamber be square, that is, as long as broad, and between every Chamber let there be a Wall, with a hole in the lower part, that the flame say pass freely into the second and third Chamber, between which two let there be also the like Partition or Wall, with its hole at bottom, and let the third or last Chamber be close, saving its little door, let it have one only hole, by which the flame may pass out, also on one side of the Furnace, there is to be a hole in every Chamber, by which the Eearthhs may be discerned, and the Minerals and Metals taken out and put in, but the Chambers are not to exceed a Foot, or a Foot and a half, in height; in the upper part of which, let there be a Cover or Cap of good Earth, well luted and

accommodated to it in such manner, as whensoever need shall require it may be removed with a pair of Tongs, and put on again. All these things being thus rightly prepared, let a Hearth be made in the first Chamber of good Earth, which can sustain the fire, let the Earth not be too fat, or too lean, but of a middle condition; in the second let there be a Test made of Argill, or Wood Ashes, but in the third Chamber, let there be a Hearth of Good Earth, and in the lane of the Lord, let the fire be kindled in the side Furnace, that the Furnace with its Hearthe may be thoroughly dried. Which being done, let the Ore of SOL or LUNA being rightly prepared, be put. into the last Chamber, that it may be made hot by degrees, and burn, but not melt, which may be hindered by the help of the little door, and the fire may be governed at a beck, according as it shall be necessary, and the Mineral requireth, or shall be able to suffer; the Minerals are sometimes to be stirred and turned well about in all parts, with an Iron Hook or Ladle, that they may be well Calcined. In the first Chamber let there be put so much Lead as the Hearth will hold, and when it moveth well, put upon it, spoonful after spoonful of the Calcined Mineral in the last Chamber, stirring it with the Lead, and turning it with an iron Ladle, and let it be so long upon it, till the Lead shall have attracted all the Metal, then the Scone are to be taken out with an Iron Ladle fit for this work, and to be kept by themselves; then again some of the Calcined Mineral is to be put upon the Lead, and so the melting, turning, and taking out of the Scoria, is to be continued as long as there is any of the Mineral at hand, or as such as is sufficient for the Hearth; and if during this

labour, the Lead should be impregnated with a sufficient quantity of Gold or Silver, by the Mineral, (which may be perceived by taking a little out in a Spoon, and examining it upon a Cupel) then let Nitre be burned upon it, and let it be repeated two or three times, for so the Lead will be purified, grow white, and be rendered ductile, and passeth freely in the Test, without waste, which yet would not be if it had not been first depurated by litre; the Lead into which the Gold and Silver hath passed, is to be taken from the Hearth with a Ladle; and the Hearth made of Ashes, in the middle Chamber is to be filled with it, and the Bellows to be planted against it, to blow the Coals to the other aide, and according to the common manner, the Lead is to be deduced into Salt, and the Cake of Gold or Silver is to be taken out, and afterward, to be throughly depurated in good Tests: And so in that Furnace may be performed three Labours, and more of the Gold and Silver is retained then by any other way, for blowing with Bellows wastes and destroys such of a Metal, and reduceth it by burning into Scoria, which the sweet flame of wood doth not do, the Scoria being taken out, suffer them to pass through a high Furnace, that if there be yet any Lead among them, it may be saved, to be used again in the former Labours, (to wit for attracting Gold and Silver, in the first Chamber, from the Minerals Calcined in the last) in this manner nothing will be lost, and not only more Gold and Silver obtained, but also without so great a charge of Coals as is used in the ordinary way. You should have always two of those Furnaces, or sore (if you have a great quantity of the Mineral) in your Elaboratory, that whilst you work in one, the other may be repaired, and when there is need, furnished with new Hearths.



This is the best and most profitable manner of melting the Ores of Gold, Silver, and Lead, containing in themselves Lime, and this without Coals, and strong blowing, but by the flame of wood only. A. the foot of the Furnace, B. C. D. the three Chambers, E. F. G. the three little doors of the Chambers, by which the Minerals and Metals are put in and taken out, H. the Cover or Cap of the Furnace, I. the Wind holes, or Registers by which the flame is governed, K. three holes in the Walls, or Partitions of the Chambers, through which the flame passeth, for the heating of the Chambers and Heartha, L. the Furnace on the side, into which is put dry wood, M. the Ash hole, N. its Cover or Stopper, M. the hole in the side, by which the flame is conveyed into the Chambers, P. the Iron Rods, with which the Minerals are turned, whilst they are in torrefying and the Scoria are taken away from the Lead, Q. a Spoon or Ladle, by which the torrefied Mineral is put upon the flowing Lead, and the Lead which is impregnated with Gold and Silver, is removed from the first Melting Hearth to the other, R. the Tongs with which the Cakes of Gold and Silver, are taken from the second Hearth, S. the Furnace in which the Cakes of Gold and Silver are perfectly depurated, T. the Tests, V. the Cineritia. N. B. That the Works coming from the first Hearth, may also be perfectly finished in the second Chamber, but it is better to do it on Tests fit for thià purpose. (The figures of this Furnace is not printed in the Latin Copy, nor to be found among the other Originals.) N. B. That what concerns this Point, is of greater moment than many will beleive, because in our Country, there are found in many places rich Mines, abounding with Gold and Silver, which

nevertheless are not rightly depurated by the common way of Melting, so that they afford so little, that it will not pay the charge of the Coals; and therefore it is yet unknown how much good Metal they contain, but it lies hid in obscurity, which nevertheless might be very well perfected in this manner, with great profit. I know Mines of this sort in various places, which I have found very poor, according to the common way of proving, but according to my Method very rich. What Treasures doth HUNGARY, BOHEMIA, CARINTHIA, STIRIA, and SALTSBERG possess in their Regions, unknown to them, and yet after an easie manner to be obtained? What Treasures hath MISNIA, THURINGIA, BRANSWICK, and FICHTELBURGH, hid in them, and do no good? There is no Man of a sound mind, but may easily by labour and observation discern what a great difference there is between the common way of Melting, and mine, if he seriously consider the matter. A Mine of Lead doth not want an exquisite Art of melting, because it is of small price, nor will the loss be great, if some of it be burnt in melting, or remain in the Earth. In like manner the vulgar way of melting Copper, by high Furnaces, and strong blowing, is sufficient. But the Mines of Gold and Silver, are not to be treated so grossly, but after a more subtile and profitable manner, that nothing of them may be lost, but say be of a greater use and profit, than hitherto hath been done. For the Mineral of Gold, although it is not in some great Rocky Mountains, yet for the most part, it is found in Flints, and Stones containing Iron, or in any- crude Mineral in which oftentimes Antimony, red Sulphur, and Arsenick, is mixed together with the Minera of Gold. As may be seen in CARINTHIA and its Confines. But how should such a

Mine, if melted with Coals after the common manner, yield its fruit without loss; for whether it be torrefied, or not, if it be cast upon Coals, and agitated with the strong blast of Bellows, that which is immature flieth away, carrying with It self that which is good; that which remaineth passeth into Scoria. For although it should be mixed with Lead, the Minera of Lead, or Salt of Lead, yet they would not remain conjoined, but the Lead is easily melted, floweth, and leaveth the Ore, which by strong blowing is reduced into Scoria, retaining much gold, which so is lost, as well as the other which flew away in smoke, and at the best but a very- little saved, which hath entred the Lead.

N. B. But, in my way, it is necessary that the Ore should be broken and subdued, and thereby forced to yield its Gold, if it be well incorporated with the lead, and the volatile is preserved with the fixt; add, that the flame lightly striking or playing upon the matter, destroyeth nothing, and by this way, there is no metal lost. That the thing is so, I will prove by a certain similitude or comparison; sake proof in what manner you please, of gold or silver Ore, and observe how much good metal that contains, afterwards prove the same in a great quantity upon Coals, and you shall find much less in that, than in your small proof; when nevertheless the contrary ought to be, because a great fire hath a greater force of acting upon the Ore, than a small one; and this is the only cause, because a great quantity requireth a more violent fire than a small one; which is averse to all crude and volatile Minerals. But by my way, there is found as such, if not more, in a large quantity, as in a small proof. Therefore I will here shew yet by another manner of

probation, that by the common and usual way of melting Minerals, all the metal cannot be obtained, and sometimes scarcely half of a third part. To an hundred pounds of the Mineral, reduced into a small powder, add 8, 12, 16, or 18 pound of granulated Lead, or as much as the Mineral shall need, mix the Mineral and the powder of Lead, which with a little Spoon are to be committed to a fiery hot Cupel, placed under a Cinerithum or Muffle, give a strong heat, and the Lead will attract all the metal from the Ore, and cast out the Scoria or dross, which will rest upon the moving Lead; which being done, you must have at hand a hot Iron Rod, with which you may move and stir the Scoria every way well, up and down upon the Lead, to the end, that if any good metal should as yet remain in them, the Lead by that moving may lay hold on it, and catch it to it self; afterwards Buffer the Scoria for a little while to heat and burn upon the Lead, that it may flow well; then let the heat of the fire somewhat abate, and the Scoria will become thicker and fit to be drawn out with an Iron rod, which is to be broad at the point, round, and sharp, that the Scoria say be every where clean and wholly drawn away from the Cupel, which are diligently to be kept, that nothing be lost, and lest the future essay should be false. This being done, drive the Lead remaining in the Cupel with an indifferent heat, then there will remain the gold or silver, which that hundred pounds of Ore did contain; that grain or portion is to be taken out and reserved. N. B. That whilst you are proving the Mineral, you may also impose another Cupel, of the same magnitude and weight, and as much Lead upon it as was mixed with the mineral, without it, suffer It to flow

alone by it self. The grain or portion which comes to be obtained from the mineral upon the other Cupel, will be what that mineral did contain. Afterwards the two Cupels are to be weighed apart, and as much as this, in which the Ore was wrought, shall be heavier than that in which only the Lead flowed, so much of Lead or Copper that hundred weight of Ore did contain; and so much gold or silver as the grain or portion remaining in the Cupel weigheth, and so much Scoria or dross as was removed and drawn out with the Iron Rod.

N. B. Some man may object, That the SCORIA cannot be so accurately and purely removed from the Cupel, but somewhat will be left behind. I answer, That although the removing of the SCORIA should not be exactly done, which notwithstanding may be done, if diligence be used, because the SCORIA to be removed are not pure SCORIA, but as yet contain somewhat of the Lead, which may be easily as heavy, yea, heavier than the SCORIA remaining in the Cupel, and which cannot be removed, nevertheless the proof will be dust and good. But if by a melting made in a good quantity, you shall find as much LUNA or SOL, VENUS or JUPITER, (N. B. that Iron and Tin cannot be proved in this manner) as the small proof demonstrated, (I think it should be, if you shall not find & etc. and the character JUPITER should be SATURN.) believe that you have not rightly proceeded, and that that which is lost is gone in fume, or by combustion, into SCORIA. Seeing therefore that this proof is of a great weight, and accordingly is to be made by a great melting Work, I will declare that labour more copiously. FOR EXAMPLE SAKE, I take two Cupels, accomodated to one and the same form, I weigh them singly, If one be

heavier than the other, then with a knife I pare or scrape it a little above or below, so that they may be of equal weight, afterwards I put them side by side conjunctly, or one before, and the other behind, under a Cineritum; when they are duly hot, I put upon one the Mineral, mixed with the granulated Lead, and upon the other, the granulated Lead only; then I suffer them to flow together, seasonably abstracting the SCORIA from that where the Mineral is; then I cause both to cease. Now supposing that I have added to the Hundred weight of ore, 1200 pounds of Lead, and also wrought 1200 pounds of Lead in the other Cupel alone, and each Cupel to have weighed three Lotbones, according to the weight of the City, and that I find in that Cupel in which the Mineral was wrought, a portion of Gold or Silver, weighing (according to the probatory weight) nine Lothones, and in the other Cupel, a portion of Silver weighing three Lothones, which the 1200 pounds of Lead yielded; But in regard that I also added to the Mineral 1200 pounds of Lead, which also have yielded three Lothones, which I subtract from the nine Lothones, and there remaineth six Lothones of Gold and Silver, which the Hundred weight of Ore hath yielded. N. B. If you would know whether the Mineral also containeth Lead and Copper, and how much, then I weigh both the Cupels apart, observing how much that in which the Mineral was wrought is heavier than that in which the Lead was wrought alone, and so much Lead or Copper I may affirm to have been, together with the Gold and Silver, in that Mineral; suppose the Cupel in which the Mineral was wrought to weigh 30 pounds, according to the probatory weight, more than that in which the Lead was agitated alone, then I am sure that there

was so much Lead or Copper in that Mineral, together with the gold and silver (for iron and tin do not enter the Cupel, but pass Into SCORIA, but the Gold and Silver remain on the Cupel) and the remaining weight, to wit, seventy pounds, I find all in SCORIA, for a little flyietli away in fume: in this manner it may be observed what quantity a hundred pounds of the Ore of Lead or Copper containeth of good Metal, and whether it have any gold or silver or not; according to which a computation may be made, whether it will pay the Charge in a great quantity, or not, and what gain may be had from It. This is a most desireable proof, invented for the use of gold and silver, which are necessarily by this way yielded in great quantity; if it happen otherwise, the errour is to be ascribed to the working; for the Mines of copper and lead, this proof doth not succeed in great quantity, although by it may be certainly known how much of either of them is contained in an hundred weight of Ore, for both these metals are easily burnt by the fire, and reduced into SCORIA, which happeneth not to gold and silver, if they be rightly handled; only here it is made appear what quantity of SATURN or VENUS is contained in an hundred pounds of Ore of SATURN or VENUS, which is impossible to exhort in great quantity, by the common and known way:

for soft and sulphureous metals of this sort lose much, because part is driven away by strong blowing; another part is reduced into SCORIA: but by my way nothing is lost thus, and but very little remaineth behind. I know yet another way, and that better too, of perfecting the Minerals of gold, silver, copper, and lead, with a certain compendious profit; but seeing that in my MIRACULUM MUNDI I have made no mention of a Work



of this sort; I shall here say nothing of it. I also know a way of extracting from very poor Copper Mines, all the Copper contained in them, without great labour and cost; which Mines are everywhere in great quantity to be found, but are not sufficient to pay the Charge of melting in the common way; but this my secret way will yield great profit, for scarcely one pound of Copper will remain behind, and be lost in an hundred pounds of SCORIA.

Point III.

The volatile and immature Marcasites of SOL and LUNA are fixed in the space of three hours, so that they render a double quantity of Metal, to what they could have done before fixation, & etc.

This fixation is a singular secret, in perfecting Antimonial and Arsenical Minerals, which are wholly crude, which commonly yield a little Gold: For when Minerals contain much Antimony, Arsenick, or Orpiment, and are torrefied in the common way, then the Arsenick or Orpiment destroyeth much of the Gold, carrying it away in fume; but if they be melted without torrefaction, then the blowing forceth away more; if from a Mineral of this sort, the yellow or red Sulphur, Arsenick, or other rapacious substances, be diminished or consumed, by closing it in Earthen Vessels, as many do, then by this means the Mineral is burnt, loseth its flux and ingress into Lead, so that much of the gold is destroyed, and reduced into SCORIA; to prevent which, this following way is the

best: With one part of the mineral mix half a part of Nitre, let it be kindled with a Coal, and fixed, then the Nitre burneth away the greatest part of the rapacious Sulphur, and fixeth the rest, so that there is but little of the Gold lost, and it keepeth Its flux and ingress into Lead; if it be put into the foregoing Furnace, and there wrought, it yleldeth all the gold and silver which It Containeth, and nothing is lost. Here some may say, and object, That although in this manner, more gold may be obtained; yet the Nitre maketh the work dear, which I indeed confess to be true, if the Nitre be bought at a dear rate, but if by an artlfical Culture, it say always be had at hand, it will cost little, and this torrefactIon and fixation, may be perfected with great profit.

Point IV.

All Gold and Silver not purely melted from Its Marcaslte, may be swiftly purged from every Additament, the silver separated from the Gold, by fusion only, with a small labour and cost, but in great weight.

This way of purifying GOLD and SILVER from all addition quiàkly, and in an easy manner, is a thing most profitable, and an Art highly necessary to be known by those who handle metals: for it is sooner done, than by the way of cupellating or blowing off with Lead, but is dearer, by reason of the Nitre; nevertheless, the labour is easie and pleasant, and it is done in this manner: Let a Crucible of impure gold or silver

be placed in such a Furnace as is described and depicted in the Fourth Part of our Furnaces, let it be melted, then cast in some Regulus of Antimony, sore or less, according to the greater or lesser impurity of the Gold, and according as it hath more or less need of cleansing for its purification. When all shall flow and be clear in the Crucible, cast into the Crucible upon the metal, at several times, about so much Nitre, as there is of addition to the Gold; let It flow, then the Nitre attracteth the Regulus of Antimony, together with the impurity contained in the Gold, which passeth into Scoria. And this Process doth not serve only for impure SOL and Luna, but also for such Sol and Luna which contain Copper, Iron, Lead, Tin, Chalcitis, Aurichalcum, and other metallick and mineral matters, Tin especially, which is difficult to be separated from Sol and Luna by Lead, without loss. But in this manner it may be quickly- and easily done. But that my meaning may be the more rightly understood and the less error be committed in working, I will here institute the Process clearly, and in express words. Suppose to 1 lb. of gold or silver, there be two lothones of Copper, and three lothones of Tin (a lothone is half an ounce) which I would separate, and if it be done by the known way of blowing off with Lead, there will need at the least thirty or forty- lothones of Lead, and nevertheless one part of the SOL or LUNA will be lost; but by my way two lothones of Copper, and three lothones of Tin, adjoin five lothones of Regulus of Antimony, then abstract the Regulus, together with the addition of Copper and Tin, by the mediation of Nitre, which may be done in the Crucible in the space of one hour, which by torrefaction and agitation in the common

way, could scarcely have been done in 10 or 12 hours; besides nothing of the Additaments is lost, all remaineth in the Scoria, from which, afterwards; as well the TIN as the COPPER and Regulus of Antimony may be recovered, to wit, if the Scoria, in which the TIN, COPPER, and Regulus of Antimony is, be put into a Crucible, a live Coal cast in, and then the Crucible covered with a tyle, let them flow a quarter of an hour, pour all out, and you shall find in the bottom of the Cone a little Regulus, in which will be the remaining SOL or LUNA, which the Scoria did prey upon; let them be depurated on a Cupel, if they be not already pure enough: The Scoria being again melted, cast in a live Coal, suffer all to flow well together, again there will fall another Regulus from the Copper, the TIN and IRON remaineth, and neither by Coals nor any other art, can be brought Into Regulus; but if these Scoria be driven through a probatory Furnace, then they also yield the Tin again, and that better than it was before. This Process is not only pleasant, artlfical, swift and easle, by which gold and silver is quickly and purely separated from all addition, but there is also hidden in it a great mystery; But because I have only proposed to prove those things to be true and natural, of which I have made mention in my MIRACULUM MUNDI, let what I have now said suffice, and what is here desired may be found perspicuously and satisfactorily declared in the following Processes.

Point V.

Gold and Silver are easily drawn out of Old Tin or Pewter Vessels, the Tin being reserved almost in the same weight, and being made better than it was before, may serve for the same uses which it is wont to be put.

This Process also is very well performed by the mediation of Nitre, viz, in this manner. Let the Tin, in which is GOLD or SILVER, be reduced into Ashes, even as Lead is wont to be prepared, for the working of Minerals, and let there be mixed with it as much powder of Nitre, let the mixture be put in a strong Pot which will endure the fire, upon which put subliming Pots, let the mixture be kindled in the lower Pot (which is under the Subliming Pots, and must have a little hole in the side for that purpose) with an Iron Rod, red hot, then the Mass beginneth to burn, and sendeth many Flowers into the Subliming Pots, the Tin and Salt-peter remaining in the Pot, take out, and melt in a Crucible, if there be much Lead, then that falleth together with the GOLD and SILVER, to the bottom of the Crucible, but the Tin with the Nitre passeth into Scoria, which if the melted Mass be poured out into a Cone, they are separated from the Regulus of Lead, and after cooling may be taken out, which Regulus of Lead, by the addition of other Lead, may again be wrought, and in a strong Crucible be reduced into Scoria with Nitre; then there will remain a little Regulus of Lead, which containeth the GOLD and SILVER, which was in the TIN. The first and last Scoria may be reduced by a strong blast in a Probatory Furnace, then the Tin will

be again obtained, better, harder, and whiter than it was before; the reason is, because the Nitre hath consumed part of the combustibile Sulphur, and also separated the Lead. Although this Process Is not done with any- great profit, yet nevertheless it shews the possibility; but he that knoweth how to handle the matter, will suffer no loss, for those sublimed Flowers are of greater worth than Salt-peter and Tin, because they may be prepared into a good Medicine; they are also Yery available in those curious Colours for Cloth (Scarlet, or Bowdy) exalting them in a wonderful manner, and firmly abiding in the Cloth, shining, and giving it a fiery ground.

Point VI.

Much Silver say be separated from Bismuth, the Bismuth preserved, A Secret agreeing to those places which abound with that Mineral.

This Secret is not of so little weight as perhaps It will seem to some; for no Man even to this day hath proved this in the matter it self and with effect, yet seeing that it may be done, viz. In this manner, melt Chalcitis in a Crucible, and cast upon it successively so much Nitre, until all the Chalcitis shall pass into Scoria, or green Glass, pour out the Mass into a Cone, then the Silver will settle to the bottom in form of a Regulus, which was contained in the Chalcitis, then put the Scoria of the Chalcitis Into a Crucible and melt them well for the space of an hour, so all the Chalcitis will be revived, rendered Corporeal, and a little will be lost. He therefore that can make the

Salt-peter himself, and needs not to buy it at a dear rate, will hence reap great profit, otherwise not; however it proveth that the Salt of the Earth can perform what is here attributed to it.

Point VII.

From old Copper much Silver is separated, the Copper preserved unhurt, by which Artifice Regions abounding with this Metal, may reap no small profit.

That this extraction of Silver from Copper by means of the Salt of the Earth, may be verified, you are to proceed in this manner: Mix with the Copper its own weight of Regulus of Antimony, then melt both together, upon which cast 80 much Salt-Nitre successively or at times, until the Copper together with the Regulus of Antimony into green Scoria, then make the fire stronger, and cause these Scoria to flow like water, and emit a Regulus, which although it be not sufficiently pure, it may be depurated upon a Cupel with a littl. Lead, and it yieldeth the Silver which the Copper contained. N. B. This process is most true, and will never deceive any Man, but I do not say that he shall obtain Riches by this means, but only prove to be true, what I have ascribed to It in my MIRACULUM MUNDI. N. B. But he that knoweth how to fix the Scoria, that is the Copper and Regulus of Antimony with Salt, and to melt them into Artificial Stones, or Enamel, so that nothing be lost, he shall be sure not to undergo the Labour in vain; otherwise he may cast in a live Coal upon the Scoria, from which the Silver is separated, when they are in



Flux, and let them flow half an hour, then it leaveth the Regulus of Antimony together with the Copper, which the Nitre hath reduced into Scoria, and afterwards another Regulus, to be applied to use, which if all things be well handled, from both, viz, from the Regulus of Antimony and Copper, (after their Edulcoration) a green colour for Painting may be extracted, and so the Labours will be compensated, and the gain will be so much the greater.

Point VIII.

Every common Silver may in the space of a few hours be exalted Into the nature of Gold.

This Gradation of Silver is performed by the help of a certain Mineral Sulphur, to wit, of IRON and Antimony, In this manner. Adjoin to Silver as much Regulus Martis, and again let it be separated from it by Nitre, which labour is performed in the space of an hour, to the remaining Silver adjoin again as much Regulus, which is again to be abstracted; and let this labour be reiterated five, six, eight, or ten times, which may be done in one day, afterwards let the Silver be dissolved in Aqua-fortis, then the Gold, which the Nitre by the help of the Silver hath obtained from the Regulus, will remain In the bottom, which is to be edulcorated, and corporified with Borax, the Gold will be good in an excellent degree, but the value thereof is scarce enough to pay for the Regulus, and Nitre. But he that knoweth how to make his own Nitre, or can obtain it without price, may reap a considerable

profit: Especially if he know how to transfer the detracted Scoria into further use, which Is sot here sought, but is only proved that SILVER say be exalted into GoLD by the help of Regulus ANTIMONII MARTIALIS.

Point IX.

Gold may be separated by fusion from every addition of Copper, Tin, Iron, Orpiment, Antimony, Arsenick, or the like, without Cupels, each being kept apart.

This manner of separating of Metals, from one another, and of depurating GOLD without Cupels, is a most pleasing, fair, and profitable Secret, by which in the separation of Metals, much time and expence is saved, and no detriment to be feared, which no man, even to this day could effect, my self excepted: You are to proceed in this manner. First, the mixt Metal, whether it consist of few or many, Is to be granulated, the grains are to be conjoined with a fourth part of powdered Sulphur, somewhat moistened, and to be set on fire in a Crucible luted according to art, which being done, the cover of the Crucible is to be taken off, and the enkindled Metal to be covered with the fourth part of its weight of Antimony. N. B. That if there be much Iron, Copper, or Tin in the mixture, then the more Antimony is to be adjoined, that it may draw to It self the imperfect Metals. Therefore when the Mass flows with the Antimony, inject a little well purified Nitre, dried and pulverized, and when it flows well, the Mass is to be poured out into a Cone, and the Regulus, if there be any, to be shaken out, which will

contain the greatest part of the GOLD which was in that Mass. N. B. If there shall be no Regulus, that is a sign that there was not Nitre enough to suffice the crudity, which is to be remedied thus: Return the Mass into the Crucible, and permit it to flow, which being done, throw in as much filings of Iron, as you judge there is Gold in the Mass, and mix it with the Mass with a red hot Iron, cover the Crucible, and give a melting fire for a quarter of an hour, pour it into a Cone, when it is cold separate the Regulus from the Scoria, which will be about the same weight with the filings of Iron, which you used in the precipitation, purifie the Regulus in a small new Crucible, by the injection of Nitre, if it yeldeth Gold without Silver, then it is a sign there is Gold yet in the Mass, therefore it is necessary to flux the Mass again, and precipitate with lion, if the Regulus be yet golden, then It is to be deperated apart by Nitre, and to be kept; but if it hath more SILVER than GOLD, it is a sign that all the Gold is precipitated, afterwards suffer the Mass to flow again, and inject as much filings of Iron, stirring them well with the Mass, with a red hot iron, permit them to flow well together, then it rendereth as much Regulus of Silver, as there was Iron put in, afterwards also the COPPER will be precipitated, and last of all, the Scoria are again to be fluxed well being mixed with Nitre, that it may appear whether there be yet any Metal in them. The Regulus of SILVER is also deperated in the same manner as the Regulus of GOLD, Venus, JUPITER, and other Additaments, are melted by Bellows, so that nothing is lost. This separation of GOLD and SILVER from the viler Metals, by melting, hath been sought by many, but found by few.

LAZARUS ERKER, in his Writings hath taught by what means GOLD may be separated from SILVER by fusion, but that separation is unlike to this which I have mentioned; because here it is not only shewed how GOLD may be separated from SILVER, but also from other Metals.

Point X.

Every imperfect Metal, without the mixture of other Metals, may be ripened by this Secret alone in the fire, in an hours space, so that it will yield Gold and Silver, but without profit; an indication that the viler Metals, may by Art be promoted into the Nature of the perfect, to the great profit of Metallurgists.

This Is done only by the power and virtue of Salt Nitre, whereby the Metal is penetrated, depurated, and fixed into more perfect or exalted in maturity, but cannot be performed with much profit in a great quantity, but it proveth that Nitre hath a virtue of transmuting every imperfect Metal into perfect, which is done in this manner. Let the Metal be laminated into very thin plates, whether it be COPPER, LEAD, or TIN, IRON, is indeed corrected by this way, but melteth not in any Crucible, and MERCURY also is transmuted into other forms, but not into GOLD or SILVER. Make in a Crucible STRATUM SUPER STRATUM with Saw-dust, Sulphur, and Nitre, as also with the laminated Metal, of which mention is made in the second part of Furnaces; kindle the mixture at the top, then a great and sudden flaming fire will arise, by which the laminated metal is penetrated, partly fixed, and amended, so that if it be wrought

on a Cupel with Lead, it leaveth some SILVER or GOLD, which nevertheless before, would have yielded neither, whence it is manifest, that the flame excited by the Nitre hath corrected the Metal. N. B. That MERCURY is first to be coagulated, and Chalcitis to be pulverized, before they be commixed with the sudden fire of Nitre, and enkindled. In these Labours, although they may be esteemed of small moment, a great Mystery is hidden, which nevertheless will be valued by no man, although It should be discovered in plain and open words, because the process is mean, costeth little, and may be performed in the space of a quarter of an hour.

Point XI.

Metals also grow up in this subject, in the form of Vegetables, before the eye, in the space of two or three hours, to the length of a Finger, or hands breadth, into many branches and twiggs, without Fruit indeed, but is a demonstration that even Metals themselves do germinate in its like Vegetables.

This Point is mentioned only for this end, to shew that Nitre hath a power of making Metals to grow after the manner of Vegetables. Which thing the Liquor of Flints also performeth, of which mention is made in the Second Part of our Furnaces; but the Liquor of fixed Nitre is better; which is prepared by fixing it with powder of Coals and Flints, which is also taught in the Second Part of our Furnaces, so that there is no seed here to repeat It. If therefore the metals being prepared

in little bits, be put into this liquor, they will grow and increase after the manner of Herbs, and so quickly, that in a few hours space they will grow to the height of a hands breadth, which is very delightful to the eye, and worthy of a singular meditation, whence so sudden an increase should proceed. Certainly many things might be written concerning this matter, but because in this place I have promised no more, but to verifie what I have attributed to the salt of the earth in my MIRACULUM MUNDI; let what is said suffice.

Point XII.

There is another augmentation or increase of the Perfect Metals, very gainful, by the Imperfect, answering to the germination or growth of Vegetables, & etc.

As for this augmentation, it is done by a way far distant from the foregoing, viz, in this SOL and LUNA are joined with Lead, Tin, and VENUS, or with Tin alone, where It is to be left for a convenient time, then the Sol attracteth from the Lead or other imperfect metals, a golden Essence<sub>1</sub> is increased and made heavier. The Process is this: Take one lothone (or half an ounce) of Gold, eight or ten lothones (which is four or five ounces) of Lead, let them be melted together; if you please, you may add Tin or Copper; put the Crucible, together with the Lead or other imperfect letals, into a strong Crucible, give a temperate and constant Fire, that the Lead with the Gold may only flow, but not be white hot; cast into the Crucible upon it half an ounce of the best

Nitre, cover the Crucible well, that no Coals fall in, and keep it in a constant easie fire, then in such a time the Lead, together with the other metals, which were mixed with it, will be turned into Glass, but the Gold being pure, is separated from the Glass by it self, and will adhere to the bottom of the Crucible, which when the Crucible is broken take out and weigh, and you shall find your Gold encreased, and that It hath taken weight from the other metals. Although this labour affords no profit, yet it sheweth how the nature of metals are to be known. There is yet another way of trying this thing, thus, viz. Take half an ounce of Gold, join with it 5 or 6 ounces of Lead, and drive away the Lead again upon a good Test, till the Gold sparkle and shine, and you shall find your Gold to be made much heavier than it was before, which weight it has drawn from the Lead only.

Point XIII.

By the mediation of this from all Imperfect Metals and Minerals, yielding nothing In the usual Examin of Cupels, Gold and Silver is produced in a manifold manner, being an Argument that the Imperfect Metals have somewhat of the Perfect reconded in them, when they are inverted, and shew themselves to our sight.

If we would obtain Gold and Silver from the Imperfect Metals, by the help of Nitre, an equil weight of Regulus of Antimony is to be added to them; that they may be rendered frangible, and fit to be pulverized, so that they may be coinmixed and fixed with Nitre in this manner: Take



an ounce, or an ounce and a half of Copper, Lead, Tin, or Chalcitis, melt it with as much Regulus of Antimony; pulverize the mixture, and mix with it its equal weight of the best Nitre, put the mixture into a crucible, kindle it with a live coal, then the mixture will be reduced by the Nitre into Scoria, which must be melted by a very strong fire, in a Wind Furnace, then the Metal will pass into a Regulus, but the Regulus will remain in the Scoria, which by the casting in of a live coal may be precipitated and brought to Regulus again: but weigh the metallick Regulus according to the Hundred weight, and drive it (if it be Lead) upon a Test, then you shall find It to contain gold and silver, which the metal had not before. If the metal be Copper or Chalcitis, a due proportion of Lead is to be added to it, that It may be wrought upon a cupel, then it leaveth gold and silver, which without this Operation it would not have done. This Work may also be effected by another way, viz. Mix LEAD or COPPER with its own weight of Regulus of Antimony, suffer it to flow well with the metal in a melting Furnace, inject successively by a little at a time, so much Nitre as both the Metal and the Regulus did weigh, then let the Regulus and the Metal be fired by the Nitre, that some of the superfluous sulphur may be burnt and the mixture reduced to SCORIA, afterwards give a strong fire, that the Scoria may be well melted, then the Metal will be separated from the Regulus, which may be tested, and the correction of the metal, made by the benefit of the Nitre, will be manifest.

As for these 13 Metallick Labours, they are in themselves very good, and profitable to be known by every one handling Metals, some of which,

if they be accurately managed, and by a skillful Artist, will afford great Gain, and they are all done by the help of the Salt of the Earth. But I will not deny, but that those Labours may also be performed by another way, which needeth no Nitre. But I do not now intend to say any thing of that, but only to prove that all those Secrets and Transmutations may be effectually performed by the contemptible salt of the Earth.

In Mechanicks.

Point I.

They who Engrave or Etch upon Copper, may of this subject prepare a good corrosive Water, by which (the Copper Plates being first smeared over with a Covering fit to defend them, and what Images or Lines they please, drawn upon them, with a stile or etift) by an easie and compendious manner, they will be corroded or eaten, which otherwise would require a longtime to be engraven.

That a corrosive and graduating AQUA-FORTIS may be prepared of Nitre by distillation, needs no proof, the way of making it being every where known, as a thing common, only here it is proved that this shortning of the Engraver's Work say be performed by the Salt of the Earth.

Point II.

Painters by the help of this, may prepare for themselves most excellent

Colours, as ULTRA-MARINE, blue Smalt, fine red or Scarlet LACCA, VENICE Ceruse, and others necessary for their Uses, which otherwise they must have from far, as ITALY, HOLLAND, FRANCE, & etc. and at a dear rate.

That excellent colours for Painting, may be made by the salt of the Earth, I will prove: Blue Smalt is otherwise prepared of flowing Sand, Chalcitis, and Potters-ashes: But if instead of those ashes, you take the fixed salt of the Earth, the smalt will not be only rendered more open, loose, and fine, but also purer, by reason the salt of the earth is purer than those ashes. LACCA for the most part is made of Flocks shorn from crimson or scarlet cloth in the dressing, and by a singular LIXIVIUM (instead of which Nitre may be taken) the colour is extracted, Which is to be precipitated,edulcorated, and dried upon clean Boards in the sun, or by a stove. Verdigrease and Ceruse are commonly prepared by the help of Vinegar, in Iron Vessels put in Horse-dung; but if the Copper or Lead be dissolved in spirit of Nitre, and the Copper precipitated by a LIXIVIUM of salt of Tartar, but the Lead by salt water, thenedulcorated and dried, the Copper will exhibit a green colour, which may be used in all Paintings, and will not corrode and destroy other colours, as the common Verdigrease is wont to do: And the Ceruse is rendered more delicate white, and pure than that which is prepared by Vinegar, with which oftentimes much Chalk is mixed to augment it, and is not so conducive to Painting, nor to the shops, as that which is made PER SE, without any mixture.

Point III.

Engravers and Statuaries may so harden their Tools, that they may hold their poin€s long, if they be to cut stones.

That Iron may be hardened by Cementation with Salts, so that it may serve instead of Steel, is now openly known; but the iron or steel is to be kept in cementation as long as need shall be, not with common salt alone, but mixed with the powder of coals and salt of ashes, then the Iron grows as hard as steel, but steel is rendered harder than it was before.

Point IV.

Embroiderers may put any durable Colour they please upon the Silk with which they work.

It may be known, that Nitre, as being a depurated salt, will easily induce colours, and constantly preserve them, yea, exalt them, which many know, especially who dye cloth with rich grain colours, as Scarlet, Crimson, & etc. when they add the spirit of Nitre in the boiling, to aluminate it (as the Dyers call It) the colour is wonderfully exalted, and made much more fiery, so that it may be sold dearer than common Crimson or Scarlet. This spirit of Nitre also tingeth Ashes, Nails, or Hoofs, Quills, or Feathers, with a golden colour, but if the Nitre be fixed by calcination, then it also equally exalteth, but not into a red, but a Purple, Dyers use Potters ashes for these Works, but fixed Niter is much purer, and rendereth the Work more beautiful than those impure ashes.

Point V.

They who Paint Glass, by an easie Work, may thence prepare all Colours or Enamels for Glass, so that there will be no need to have them from Venice.

The Painters of Glass sometimes complain, that their fusory Glass or Enamel will not readily flow, and that the Glass which they are to colour is melted first; the Salt of the Earth being fixed, reniedieth this, if the colouring Glass be mixed with it In a due proportion, and again melted, for by this means they will be rendered fluxible at pleasure.

Point VI.

They who work in Wax, by the benefit of this, may whiten it exceedingly, and colour it as they please.

That Salts with Water do whiten yellow Wax, being melted thin, and exposed to the Air, and often sprinkled with the Salt Water, is sufficiently known, and wants no proof, but not better than salt Nitre it self.

Point VII.

Printers also may add this subject to their Ink, which will cause it to adhere very firmly to the Paper, and render the Letters very fair.

That fixed Salts will readily conjoin Ink with Water, is not unknown,

and none better than fixed Nitre, which also excelleth all sharp LIXIVIUMS, having a power of cleansing Lead, Tin, Copper, or other Vessels.

Point VIII.

It is convenient for Clock-makers, or Watch-makers, if a Water be distilled from it, which solderetja Iron or Steel, without fire, if a drop of that AQUA-FORTIS be dropped upon it, whence the Iron growing hot, it presently waxeth soft, as if it had been soldered in the Fire by the help of Copper.

If an AQUA-FORTIS be distilled from Niter and calcined Vitriol (N. B. that there must be no Water or Phlegm in the Spirit) and two little pieces of Iron be melted with it, (between which there must be little filings of Iron) then the Iron groweth hot by the AQUA-FORTIS, which acteth upon it, and the one will be joined to the other by melting, as if it had been done by the Fire. But he that will use that water, must know how to prepare it himself, because such is no where to be found to sell.

Point XI.

All Smiths may by it harden their Files, and other Iron Tools, as durable, as if they had been made of the hardest Steel.

Fixed Salts being mixed with ashes and powder of coals or sand, after that they have remained 24 hours In a close Fire, do harden iron like Steel; as is proved, before in the third point.

Point X.

Pewterers may harden their Tin or Pewter, and give to it an elegant whiteness, so that it will resemble Silver both in colour and sound; neither will it easily tarnish, and by reason of its hardness, will last longer than common Pewter.

If Tin be often melted, and extinguished in a LIXIVIUM of fixt Nitre, it is made harder than it was before; but if it be put to Nitre in Flux, and suffered to melt in It; then also will be more hard. N. B. But if the Tin be reduced into Scoria by Nitre, and the Scoria again reduced, it will be rendered harder and fairer, than by the two former ways.

Point XI, XII, XIII.

Cabinet-makers may strike an excellent Black upon Pear-tree, Box, Walnut-tree, and other hard Woods, which may be used for curious Works instead of Ebony. Skinners or Furriers may dye their Ermins, Foxekins, Wolfskins, and the like Furs, with a scarlet, crimson, or deep black colour, far exceeding the natural. In like manner Feather-dyers may swiftly give any lasting colour to their Plumes.

If an AQUA-FORTIS be distilled from Nitre and Vitriol, and a little silver dissolved in it, and Rain water poured thereon (for the weakening of the AQUA-FORTIS) then not only all hard Woods, are blacked by it, so that they represent Ebony, but also skins and feathers are made black as a coal, a ground being first laid upon the feathers, skins, or woods,



Point XIV.

Taylors may take out Spots or Stains, out of Woolen, Linen, or silk Garments, and restore their Beauty.

Of fixed Nitre is made a Soap, so subtile and pure, that by it all Spots may be taken out of Garments.

Point XV.

If Shoemakers put old Iron to this subject, they may therewith adorn their Leather with an excellent Black.

If Nitre be dissolved in Vinegar, and old Iron lie some time in it, it will make an Ink with which Hides may be blackened with an excellent Black. But there is no need of Nitre for this use, for if Iron be put to Aqua Calcis, it effecteth the same thing; only mention is made of this in MIRACULUM MUNDI, that it might be manifest, that this Universal Subject may be of use, to all and singular Artificers.

Point XVI.

Weavers may render their Linen Threds so fine and soft, that they will emulate silk.

All Men know that the boiling of Thread in a strong Lixivium renders it soft and delicate, but seeing that fixed Nitre is better than a strong Lixivium, it will also perform this work better than any common Lixivium.

Point XVII.

Dyers by this may give so firm and unchangeable a ground, to their Cloth, that the superinduced Colours shall not be corrupted, or spoiled by any Wine, Vinegar, Urine, Pickles, Air, or Sun.

If the spirit of Nitre be put into the first boiling with the Alum and Tartar, for the aluminating the Cloths, it will give a permanent ground, as is already proved in the fourth point.

Point XVIII.

Potters may thence prepare a Glassy Colour, not unlike to the INDIAN PORCELLANE, of which Vessels may be made having the aspect of Gold, Silver, or Copper, a singular Ornament for Noblemens Tables, hitherto unknown to the World.

The Glasing of Earthen Vessels, that they may appear like a natural Metal, is an egregious art, but it doth not always succeed, for the Colours are easily burnt and destroyed by too much heat, so that no Metallick Vitrification can be discerned. Vessels therefore, ought to be glazed not in a common Potters Furnace, but in a peculiar Furnace, that the fire may be often observed. If the Vitrification be to represent Gold, or Silver, or Copper, then Gold, and Silver, and Copper is also to be taken in this manner: Take one part of Gold and Silver, or Copper, Regulus of Antimony two or four parts, melt the Regulus and the Metal, pulverise them in an Iron Morter, and mix them with an eqnil

portion of Nitre, suffer the mixture to be fixed in a Crucible, with which mixture the earthen vessel is to be rubbed over or gilded, afterwards to be committed to a Furnace fit for this purpose, if you proceed right, you will obtain a very beautiful Vitrification, as if the Vessel was gilt with Gold, Silver, or Copper, which will not vanish or decay, and will far exceed in beauty and splendour the Vessels which are gilt with those Metals, for those in process of time lose their splendour, but these do not as long as the least bit remains.

Point XIX, and XX.

Soldiers, Merchants, Travellers, Carriers, Fishermen, and others, who are much in the open Air, may of this prepare a Varnish in which they may dip linen Cloth, which will not permit either Air or Water to pass through it, with which they may defend their Boots or Cloths, so that they may travel dry in the rain. They who make Tapestry, may restore their fain and faded Colour, so that they shall be strong and beautiful.

Here mention is made of a certain mixture in which if Linen Cloth be dipped and dryed will not permit water to pass through, and it is done in this manner. There is nothing wanting in Linseed Oil, but that the humidity be taken from it, which always hindereth its dying; now to effect that, there is no better way, than to boil the Linseed Oil gently and gradually with the Flowers of LAPIS CALAMINARIS or Saturn, (which are sublimed by Nitre) so long till the Oil be tenacious, and groweth hard enough for this use. N. B. That a Linen Cloth immersed

in this mixture, and shining Talk being finely laid upon it, may be coloured of any colour, which will very strongly adhere to it, and may serve for the making of Tapestry. Therefore in this manner the nineteenth and twentieth Points are confirmed,

Point XXI, and XXII.

Mistresses of Families, may of it prepare fine Soap or Wash-balls, far exceeding the VENETIAN. Household Maids, may with it scour their Metalline Vessels, so as to render them neat and beautiful.

That fixed Nitre will wash and purifie Linen cloth beyond all Soap, no Man will deny, who comprehendeth the matter, concerning which thing, the Ancients have written much, and not in vain, calling Nitre the Soap of the wise, but not for the washing of Womens Linen, but for the intrinsecal purifying of the imperfect Metals: Their External Purgation may also be performed by help thereof, so that the twenty second Point is also verified.

Point XXIII.

Women may change the Yellow, Pale, or Brown Colour of their Face, and hands, into a beautiful whiteness.

That an Egregious Cosmetick may be made of Nitre, calcined with white Talk (by which ill coloured skins may be whitened) is not to be doubted. For if Nitre fixed by the Regulus of Antimony alone, performeth

that, why should it not yet do it better, if it be Conjoined with some white Mineral Talk in the Calcination?

Point XXIV.

Old Women may by an easie way, take away the Wrinkles of their Face and Hands, as also the Corns of their Feet, and boil their Linen to such a softness, that it shall come but little short of Silk.

It is easie to verifie this, to wit if Nitre be fixed with Regulus of Antimony, and set in a moist Cellar to run into an Oil, which Liquor will be so fiery, that if any hard Skin, or Corn, be often anointed with it, it will so soften it, that it may be cut away with a Pen knife, and afterwards other smooth and soft skin will grow in its room.

Point XXV.

Gardeners by this subject may destroy all Insects, by mixing it with warm water, and pouring it into those places where they breed, for they will either die in their holes, or run out to die, because they are not able to abide that fire. It also ripeneth Fruits, if a little of this Menstruum be applied to their Roots, at the entrance of the Spring; and if a large quantity of Apples be well covered over with it, they may thence prepare a lasting Wine, Vinegar, or burning Spirit.

It is not to be doubted, but that fixed Nitre will kill all Worms in the Earth; I have often tried it with good advantage, and found it

true, in this manner: Many years ago, I had a Garden, in which was a Bed of Asparagus, which I covered all over in the Winter with Horse-dung, to defend it from the Frost, which occasioned the breeding of many small Worms like Threads, sticking to the Roots of the Asparagus, so that they could by no means grow or increase, only by reason of the great quantity of Worms, which took away the nutriment of the Vegetable for themselves. And once by chance throwing some fixed Nitre exposed to the Air, and turned into a Liquor, out a Window into the Garden, it fell upon that place where these Worms were, the fixed Nitre was dissolved by the following Rain, and penetrated the earth; which done, the Worms in great numbers crept out of the earth, because they could not abide that fiery Liquor, the Asparagus grew up in the same place more plentifully and perfectly than before, which moved me also to apply this Liquor in other places; by this means the whole Garden was in a very short time freed from Worms.

Point XXVI.

Bakers may use it in stead of Ferment or Yeast, if they dissolve a few hops therein.

If pure Nitre with flower be thoroughly moistened with warm water and set in a warm place, then, by its own proper power and virtue, it beginneth to ferment, especially if some fresh Hops be put to the water, by- which also other things are promoted to fermentation.

Point XXVII.

Brewers by its help may have very strong Beer, if they extract their Hops therewith.

In the like manner, also warm Beer may be excited to fermentation.

Point XXVIII.

Mead, and Metheglin, as also Beer, and Canary wine, which are upon the turn, and growing sowre, may be by this rendered drinkable.

Any kind of Drink, whether it be Canary, Metheglin, or Beer, which easily sowre in Summer, if you would amend them, to a Pun of the Liquor put about two or three Ounces of fixed Nitre put up in a Linen Rag into the Bung-hole at the top of the Cask, and let it hang down into the Liquor, then in a short time the sowre Liquor will be rendered drinkable.

Point XXIX.

Comb-makers, and others who work in Horn, may by this so soften their Horns, that they may imprint upon them what Images they please.

That every Horn, or Bone may be softened, if it be sufficiently boiled in a Lixivium of Nitre, may easily be apprehended; which thing another strong Lixivium, not so fiery as that of Nitre, will also perform.

Point XXX.

Keepers of Armories may preserve their polished Arms, or Harness free from rust, by anointing them over with this subject.

It is credible, that fixed Nitre will preserve Iron from Rust, seeing that it is equally contrary to Corrosives, with a simple Aqua-Calcis which performeth the same.

Point XXXI.

Bird-catchers, may by the help of this prepare such a Birdlime, as will not be altered by Cold or Heat.

If a Spirit be distilled from Nitre, and Lapis Calaminaris dissolved in it, and the Spirit again drawn off, there will remain a thick and heavy Oil., with which the Glue for Wood being thoroughly humected and dissolved, it becometh tenacious and viscous, which will not be dried by the heat of the Sun, but keepeth its unctuousity in all Seasons. N. B. That Spirit of Salt, or Vitriol, also performeth the same thing, if any Glue be dissolved therein.

Point XXXII.

Soldiers may by help of this prepare a fulminating powder from Gold, of which the magnitude of a Pea, put upon a red hot Iron Plate, will give a greater Clap, than half a pound, yea a whole pound of Gun-powder; the same may also be prepared without Gold, by the addition of Salt of Tartar and Sulphur, as it is described in the second part of Furnaces.



As for this point, it needeth no proof; for it is sufficiently known, that of GOLD dissolved in Spirit of Nitre (in which also was dissolved Sal Armoniáck) and precipitated with Salt of Tartar (or Spirit of Urine, which Is better) thenedulcorated and dryed, such a powder will be made, which being put upon an Iron, Copper, or Silver Plate, and enkindled by a light heat; fulminateth more strongly than half a pound of common Gun-powder, concerning which, I have treated at large in other of my Writings.

Point XXXIII.

Engineers, and makers of Fire-works, may perform many wonderful things, by the help of this subject.

That common Nitre is. used in the making of Gun-powder, and other Fire-works, wants no Testimony, being a thing every where known.

Point XXXIV.

Many new Works belonging to the Weavers, and Smiths Art, may be made thence, which may be Communicated to Neighbouring Countries, in lieu of which, money maybe brought into a Country impoverished by War.

As for this point, it is most certain, that by the mentioned Sub3ect, various Manufactures may be perfected, which thing let no Man doubt; but there is no need here to particularize; let it suffice that I have verified (by the assistance of God) those things which I have named, and proposed to explain in that place.

Point XXXV.

If Keepers of Vineyards, pour a little of this Subject to the Roots of their Vines, they will have ripe Grapes, and new Wine sooner than the rest of their Neighbours of which they may make a good advantage.

Plebeians, Country-men, Gardeners, Vine-dressers, and the like, who are conversant about the propagation of Vegetables; do say, and believe, that Dung causeth Fertility, and the increase of things: But a Philosopher, penetrating farther into Nature, and who is a most diligent Searcher of her Works, attributeth that to the Salt which is hidden in the Thing, and the matter it self is no otherwise, for by digestion in the Stomachs of Men and Beasts, the essential Salt, as well of Animals, as of Vegetables, is transmuted into a Nitrious Salt, which together with the Excrements passeth out by the Belly, and is used by Men for the propagating of Vegetables of all kinds, but another Salt which doth not participate with that, is separated by another way, to wit, by Urine, the greatest part of which Salt is acid, and contrary to the growth of Vegetables, (although it carrieth along with it some volatile Salt) it destroy-eth, mortifieth, and taketh away from them the power of growing, yea, Life it self, if they be often moistened with it; but the Nitrious Salt recoded in Excrements, on the contrary, vivifieth all Vegetables, and maketh them to encrease, grow strong, and bear Fruit, which all men know. Therefore if it be probable that it is not the Dung, but the Salt which is hidden in the Dung, that causeth fertility and encrease, it will be possible, that an encrease by such a Salt may be procured

in all Vegetables equally as with Dung it self, and indeed better, for there is Urine also conjoined with the Dung; which if it be not for some time exposed to the Air and the Rain, for the washing away that sharp Salt, the Dung would avail nothing to the fattening of the Earth, which Country-men know, and therefore they do not presently use their fresh Dung, but lay it in the Fields before Winter; Vine-dressers in their Vineyards; and leave it there all the Winter, to that end, that the Rain may wash out that sharp and hurtful Salt; and this being done, then at length they mix it with their Earth; and the event teacheth them that this fattens more than Dung carried fresh out of Stables, and full of Urine. Therefore if I know how to make a Nitrous Salt, which is recoded not only in the Excrements of Men and Brutes, but also in Rainwater and common Earth, I may use this instead of Dung, (being first purged from its contrary acid) one pound of which will perform more than an hundred weight of Dung; yet in the mean time it conduceth to that purpose, if a little Sheeps-dung be dissolved together with the purified Nitre, in Water, with which the Roots of the Trees are to be moistened or Seeds throughly wetted with the same. And this I have proved more than once, and found, that by the help of Nitre well depurated, an encrease is most powerfully and swiftly promoted, yea, more than can be believed. N. B. That I would have none understand me, as if common Nitre were to be taken, which is not at all profitable in these matters.

Point XXXVI.

Nevertheless Must and Wine may be ripened after another manner in the Hogehead, without this Art, so that they who understand the way may have always good Wine, when others have it sower, & etc.

This is a very fair and profitable Secret in those places, where Wines, by reason of cold, cannot come to maturity, but are forced to remain crude and impotent, which by this Remedy may be brought to maturity in the Hogahead; so that Wine which is eager and sower, may be made delicate, friendly, generous, and durable. And although I here write nothing but the truth, and what I have often effectually proved, yet I very well know, that but a very few will apprehend or believe it, which matters little to me, I am satisfied, that I have verified what I have written in this point.

Point XXXVII.

There remains yet another thing very profitable to Country-men. The Juice of Apples or Pears being pressed out, by the help of this subject, such an effervesency or working is promoted, as Wine maybe thence made; having the relish of the natural, and but little inferiour in durability and strength, & etc.

In this point mention is made how the Juice of Apples, and Pears, may be corrected, that it may be like to Wine, keeping many years uncorrupted: which certainly is a Secret of great moment and profit.

Apples, when ripe, of their own accord fall from the Trees, every thing hath its period; what advantage may be made by this Art in those places, where a great quantity of Fruit groweth; whether is it not better to make this use of them, than to leave them to rot and be lost? I will do what lies in me, and not bury my Talent, that I may be rendered excuseable before God and the World, although that which I teach may not be recieved, as becometh it to be used. At length, after my Decease, it will be observed, what is hidden in my Writings, but the PEPYGIANS were wise too late. Therefore I again affirm, that all things contained in this point, are purely true, and may be perfectly effected. (See Apology against Farnner.)

Point XXXVIII.

If Husband-men moisten their Seed with this MENSTPUUM, it will sooner be ripe, and have larger and fatter Grains than ordinary: which being done, I will shew by what means they may make great profit of their Grain, & etc.

The 35th. Point confirms the truth of this, That Grain will grow the more plentifully, if it shall be huinected with the Nitrous Water above mentioned, before it be sown, but common litre is not here to be understood. The other is also consentateous to Truth, which is written about the most profitable use of Grain, which none need doubt; for as yet more may be done in that than I have here spoken, for without much labour and cost, by that water, every good and kernelly substance, as I may so speak, of Grain, is extracted, which Extract may be kept for

many years, as a Treasure of great moment, of which afterwards, at any time or place, (by the addition of Water of Hops) good Beer may be made, and Vinegar, and burning Spirit; it is also of such a very Nutritive substance, that in case of necessity it may be used instead of Bread, one pound of which will afford more nourishment than two or three pound of Bread made after the common manner. It may also be kept in Garrisons with great commodity: Also it may be used at Sea, by those who sail to the INDIES, and trade about in Ships, when they want Bread; of which by the addition of warm water of Hops, may be made very good Beer, at any time of the year, for it is easily and wholly dissolved in warm water. For this reason also it may be most commodiously carried from place. to place by Armies in time of War, which in the Field, at any time, Winter or Sumner, with the water of Hops, it may be boiled into Beer, and there is no need to carry the water far, because it is to be found in all places; neither are Hops of any great burden; therefore in one only Ton there may be carried of this Extract as much as sufficeth for the brewing of six or eight Ton of Beer; and which is more, by this means, wholesome Beer may be made in the DOG-DAYS, as well in Camps, as in Cities and Ships, without any fear of impediment or future sownness; at which time good Beeris not otherwise made, because then itis wont presently to grow eowre; and many other Commodities are procured by this means, all which to declare, would be superfluous. Let what hath been said suffice.

Point XXXIX.

I have yet one thing to add among my Wine-Arts, concerning Grain, and the Fruits of Trees, and Shrubs, which is to be received with Thankfulness, as a great Gift of God to Mankind, viz. It is found by industry and manifold experience, that from Rye, Wheat, Oats, Rice, Millet; also from Apples, Pears, Peaches, Cherries, Plumbs, Sloes, Damscens, Quinces, Figga; as also from Gooseberries, Mulberries, Blackberries, Elderberries, and other like Fruits of Trees and Shrubs; from all these, I say, may be prepared with little labour and cost, a Drink very like to Wine, both in taste, smell, and strength, being grateful, wholesome, and durable, & etc.

In this point mention is made, That of the Fruit of Trees and other Bushes and Shrubs, a clear Drink may be made, which is also grateful and durable, being like to Wine in taste, colour, and virtue; which thing although it may seem strange to those who are ignorant of the matter, nevertheless it is most true; so that those things which are contained in this point, may be boldly credited. For what should it profit me to write those things which I am not able to prove, it would only turn to my disgrace and detriment. For this reason I have determined to have such a Laboratory prepared, in which not only the owners of Metallick Mines (if they desire it of me) may learn the manner by me newly invented, for the compendious melting of Minerals, so that they shall yield more Metal, than by the known and common manner; but will also shew other Secrets, that the MAGNALIA and wonders of God may be made manifest, and

We stirred up to give Thanks to the Giver of all Good: Which Elaboratory shall continue open for one whole year, which being past, it shall again be shut up and cease; for I purpose not to render the whole course of my life obnoxious to those great Labours, but at length to enjoy a quiet tranquility; which thing I am willing that all men should know, that they may spare me with their Letters, which It is impossible for me to answer, much less that I should see the Persons, seeing that the burden of Journing is to me altogether insupportable; but whatsoever I may perform at home, I will not refuse.

(See for this point Apology against Farnner.)

Here thou hast, benevolent Reader, a fundamental Explication of my MIRACULUM MUNDI, (as for those last points, to wit, 36, 37, and 39, they might indeed have been very commodiously explained here, but because this is done at large, in a peculiar Treatise, entitled, THE PROSPERITY OF GERMANY; there is no need to explain them in this place; therefore what the benevolent Reader finds wanting here, there he shall find it at large, to which I remit him) whereby it will appear to all men, unless to those who are wilfully blind, that I have not ascribed too much to the Salt of the Earth, as a universal subject, but that I have proved to the whole World, that every thing which I have attributed to it, is possible, and plainly agreeable to Truth. But that these Secrets which I have proved, may be performed by the benefit of the Salt of the Earth, may not be done by other ways, and perhaps nearer, I go not about to deny, but do necessarily affirm, that the mentioned Metallicks, as well as the Mechanicks, may be performed after other manners. Only here it



is verified. That the Salt of the Earth is deservedly esteemed a universal subject, which no man will deny, nor will be able to refute by Arguments, supported by truth, how wise soever he may seem to himself. Therefore let its vileness offend no man, for the best of things is oftentimes hidden in things of small price. Wherefore all men err, who attribute good to outward splendor, in which yet it is not, but is only to be sought, found, and obtained in things vile, and of low esteem.

NOTE THIS, BELIEVE THIS, OTHERWISE THOU WILT NEVER ATTAIN TO ANY GOOD.

But here some Man may object in this manner: If Nitre be a Universal Menstruum according to my praises of it, it will thence necessarily follow, that the stone of Philosophers should be made by it, of which nevertheless I have here made no mention. To obviate this Objection, I do indeed readily confess, that I have not proceeded in this subject, any further than those things which I have now proved; but without doubt it containeth in it self greater things, than are manifested to me and others. I have made a beginning, I have strowed the way, let others follow me, and prosecute the thing further, if God shall grant it to them; as for me I am content with small things, and do not anxiously, or sollicitously aspire after the highest. Yet in the mean time, this I freely confess, if I were not so old as I am, I should not leave this Matter unessayed. It is not to be doubted, but many men have sought the Universal stone in Nitre, but what they have found, that themselves know; and of this I am the more assured, because there Matter in the End of the Work taking fire, hath vanished like a Clap of Thunder; hence the ancient Philosophers have performed their work in Winter, lest they

should be hurt by Corruscations; it is most true, and void of all error, that a most noble essence of this sort, obtaining a power of expelling all the Natural Diaeaàes of Mortals, and of transmuting all the imperfect Metals into Gold cannot be prepared from an impure Metal, or Mineral, nor also of Gold it self. Much less of viler and more unlikely things in which Fools are miserably Occupied, prodigally, and unprofitably wasting their Goods; but in my judgement, it should be no other thing than a Concentrated Astral fire, exalted by Art, into the form of a stone, without any other Adventitious matter. For in the nature of things, no purer Essence can be found, than fire, exercising a very great power in all things, especially in Metals: For if we had not fire (I pray consider it) all Arts, and Mechanicks would grow cold, and be involved in the dark silence of Cessation. Arts were invented, and draw their Original from the fire, otherwise how should Metals be got out of their Minerals, and prepared for use? Truly they would be of no use at all. Therefore the fire containeth more than can be believed. He that doth not know fire to be a most powerful Element, knoweth nothing, nor without this, can he find out any thing, neither by any just right can he assume the Name of a Philosopher. The fire alone, without the addition of other things, is sufficient to make Metals of stones, and particularly, the best Metals out of the vilest stones, provided we know bow to use it; but universally, being concentrated into a stoney matter, which last although I have not experienced, nevertheless I have observed, if (by the favour of the Almighty) a man could exalt the fire into a Corporeal fixed substance, he would certainly have a Tincture,

for men, and the imperfect Metals. But some man may object, by what way is this Crown to be obtained? Truly by no other than by Divine Revelation. For the Secrets of God of this sort, are not so easily to be found out, nor will they be manifested to Impious men, although the whole World is infected with a foolish madness, who doatingly think by force to exhort Gold from things in which it is not, and one that hath understanding of the fire and Metals, cannot sufficiently admire those foolish and doltish Labours, which they who are Captivated by the hunger of Gold, undertake for the making the stone of Philosophers; many being willing to ascend the Ladder, are presently sollicitous about the uppermost Round, when notwithstanding they are as yet far from the lowermost step: But this is a matter of a higher and more diligent search. In the fire, I say, are contained Secrets of great moment, yea, insomuch that some Philosophers (among whom PLATO is the chief) write that God is most clearly discerned and apprehended in Fire and Salt. Fire, and the Immortal God alone can make light of darkness, which is granted to no Mortal to do; without fire is darkness and death: Without fire nothing can live, nothing groweth or encreaseth.

In sum, Fire is the most Noble, and most Potent Work of God in the whole Universe, he that knoweth how to use it rightly, will have need of no Art. Let the Benevolent Reader also take with him my small judgement concerning the great stone of the wise; let every man believe what he will, and is able to comprehend. Such a work is purely the gift of God, and cannot be learned by the most acute powers of an humane mind, if it be not assisted by the benign help of a Divine Inspiration.

And of this I assure my self, that in those last times, God will raise up some, to whom he will open the Cabinet of Natures Secrets, that they shall be able to do wonderful things in the World, to his glory, the which I indeed heartily wish to Posterity, that they may enjoy, and use to the Praise and Honour of God, AMEN.

The Epilogue.

I Doubt not but many Men considering the great good that may be effected by the benefit of Nitre, will be desirous of knowing how they may attain it in great quantity, that so they may not be forced to buy it at a dear rate; which certainly would be a great help not to a few who labour in the fire, and I could wish from my Soul, that all honest and pious Chymists might be able to recover some compensation for the Coals they have consumed without fruit. But seeing that I have made mention of the production or preparation of Nitre, in a peculiar Treatise entituled, THE PROSPERITY OF GERMANY: it is needless here to repeat it. But this I will say by way of prediction, that Nitre, being throughly known by my Writings, true Alchemy, or the Transmutation of the imperfect Metals into better, will in a short time be as common, as it was in EGYPT long since in the time of the Emperour DIOCLESIAN, who could not overcome or subdue the EGYPTIANS, until he had by many Cruelties extorted their Books from them, which he burnt, and so brought them under the yoke of servitude. N. B. That it is no wonder that the Transmutation of Metals should have been so common with the EGYPTIANS only, seeing

that Nitre is found in all places of the land of EGYPT, and the famous River NILE is impregnated with Nitre, which only by its overflowing (which it doth twice in a year) so fateneth the whole Country, that it is made very rich and fruitful in all things without dung, for the NILE aboundeth with Nitre, as the Sea doth with common Salt. For at certain times of the overflowing, viz, in the beginning, the inhabitants are wont to dig deep Pits, that they may remain full of the water, which being afterwards dried up by the Sun, Nitre is very Copiously prepared, as common Salt is made in SPAIN, and other hot Regions. This therefore I was willing to discover for the information of the Reader; if he be wise, and God be propitious to hint, he will believe that I have said enough, but if not, an Explication ten times clearer will not help him. Therefore let it suffice, that what is here desired, shall be had in those Treatises which are entitled, THE PROSPERITY OF GERMANY, whereby a man filled with the Love of God, will be greatly delighted.